

**Notice of Allowability**

Application No.

10/080,849

Examiner

Christopher R. Magee

Applicant(s)

HANNA ET AL.

Art Unit

2627

**- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 7/12/2006.
2. ☒ The allowed claim(s) is/are 5,9,10 and 14-54 (renumbered as 1-44, respectively).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

*CR Magee* 7/20/06

*Angel Castro*  
**ANGEL CASTRO**  
**PRIMARY EXAMINER**

## DETAILED ACTION

### *Response to Amendment*

1. The reply filed 7/15/2006 was applied to the following effect: All relevant objections and rejections are withdrawn as being satisfied.

### *Reasons for Allowance*

2. Claims 5, 9, 10 and 14-54 are allowed (renumbered as 1-44, respectively).

The following is an examiner's statement of reasons for allowance:

This application is for THE SUSPENSION DESIGN FOR ATTENUATION OF DISK FLUTTER INDUCED TRACK MISREGISTRATION OF A HARD DISK DRIVE BY MANIPULATION OF THE HINGE AND/OR LOAD BEAM.

- **Claims 5 and 9** specify a head stack assembly in a disk drive, which requires:

*"a first convex portion defining a first radius of curvature, adjacent the actuator arm and adjacent, a first concave portion of the first surface, defining a second radius of curvature, adjacent, a second convex portion of the first surface, defining a third radius of curvature, adjacent, a second concave portion of the first surface, adjacent the first end."*

The closest prior art of record, Owe et al. (US 5,012,369), does not show a first convex portion defining a first radius of curvature, adjacent the actuator arm and adjacent, a first concave portion of the first surface, defining a second radius of curvature, adjacent, a second convex portion of the first surface, defining a third radius of curvature, adjacent, a second concave portion of the first surface, adjacent the first end as required by the applicant's claimed invention.

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- **Claim 14** specifies a head gimbal assembly for a head stack assembly in a disk drive, which requires:

*“wherein the hinge includes a radius geometry that defines a first radius of curvature, a second radius of curvature and a third radius of curvature, the first radius being closer to the mount plate than the second radius, the second radius being closer to the mount plate than the third radius, and wherein the third radius is greater than the second radius.”*

The closest prior art of record, Owe et al. (US 5,012,369), does not disclose a hinge which includes a radius geometry that defines a first radius of curvature, a second radius of curvature and a third radius of curvature, the first radius being closer to the mount plate than the second radius, the second radius being closer to the mount plate than the third radius, and wherein the third radius is greater than the second radius as required by the applicant's claimed invention.

- **Claim 15** specifies a suspension for a head stack assembly of a disk drive, which requires:

*“the hinge including a first surface having a first convex portion defining a first radius of curvature, adjacent the first hinge end and adjacent a first concave portion of the first surface, defining a second radius of curvature, adjacent a second convex portion of the first surface, defining a third radius of curvature adjacent a second concave portion of the first surface, adjacent the second hinge end.”*

The closest prior art of record, Jagt et al. (hereinafter Jagt) (US 5,898,543), shows a hinge including a first surface having a first convex portion defining a first radius of curvature, adjacent the first hinge end and adjacent a first concave portion of the first surface, defining a second radius of curvature, adjacent a second convex portion of the first surface, defining a third radius of curvature. Jagt does not show the third radius of curvature adjacent a second concave portion of the first surface adjacent the second hinge end as required by the applicant's claimed invention.

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- **Claims 23, 27, 32, 37, 42, 47 and 51** specify a load beam for a head gimbal assembly, which requires:

*“the hinge portion defining a radius geometry that includes at least three radii of curvatures configured to lower load beam toward the disk such that a first surface of the hinge portion defines at least two concave portions and at least two convex portions, the first surface of the hinge portion being coupled to the actuator arm.”*

The closest prior art of record, Jagt et al. (hereinafter Jagt) (US 5,898,543), shows the radius geometry includes a first radius of curvature, a second radius of curvature and a third radius of curvature, the first radius being closer to the mount plate than the second radius, the second radius being closer to the mount plate than the third radius, and wherein the third radius is greater than the second radius. Jagt does not show the first surface of the hinge portion defines at least two concave portions and at least two convex portions, the first surface of the hinge portion being coupled to the actuator arm as claimed in the applicant's invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”


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***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-4: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
**ANGEL CASTRO**  
**PRIMARY EXAMINER**

  
Christopher R. Magee  
Patent Examiner  
Art Unit 2627

July 20, 2006  
crm